UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA
FOURTH DIVISION

UNITED STATES OF AMERICA,

Plaintiff,

and

STATE OF MINNESOTA, by its Attorney General Warren Spannaus, its Department of Health, and its Pollution Control Agency,

Plaintiff-Intervenor,

v.

Civil No. 4-80-469

REILLY TAR & CHEMICAL CORPORATION; HOUSING AND REDEVELOPMENT AUTHORITY OF ST. LOUIS PARK; OAK PARK VILLAGE ASSOCIATES: RUSTIC OAKS CONDOMINIUM INC.; and PHILIP'S INVESTMENT CO.,

Defendants.

and

CITY OF ST. LOUIS PARK,

Plaintiff-Intervenor,

v.

REILLY TAR & CHEMICAL CORPORATION,

Defendant.

PLAINTIFF-INTERVENOR STATE OF MINNESOTA'S MEMORANDUM IN OPPOSITION TO THE DEFENDANT REILLY TAR & CHEMICAL CORPORATION'S MOTION TO DISMISS THE STATE'S COMPLAINT IN INTERVENTION

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PROCEDURAL SETTING

On September 4, 1980, the United States brought this suit under Section 7003 of the Resource Conservation and Recovery Act (hereinafter "RCRA"), 42 U.S.C. § 6973, to repair harm caused, and prevent future harm threatened, to soil and waters in the City of St. Louis Park by coal tar and coal tar derivatives released into the environment by defendant Reilly Tar & Chemical Corporation. On the same day, the State of Minnesota served its motion seeking leave to intervene as a plaintiff and leave to assert pendent claims under Minnesota law based on public nuisance, negligence, strict liability, and state pollution control statutes and rules. This motion, together with a similar motion by the City of St. Louis Park, was granted by the Court on October 15, 1980. The City of Hopkins subsequently moved to intervene as a plaintiff on May 16, 1981.

On March 4, 1981, Reilly Tar filed its motion and supporting papers seeking dismissal of the complaints of the United States, the State, and the City. On May 27, 1981, the State served an amended complaint on Reilly Tar, adding a count under the recently enacted Comprehensive Environmental Response, Compensation, and Liability Act (hereinafter "the Superfund Act"), 42 U.S.C.A. § 9601 et seq. The Superfund count is not addressed by the pending motion to dismiss.

The United States has filed an extensive brief in opposition to the motion to dismiss its claims under section 7003 of RCRA. The State joins in the arguments of the United States, including the discussion of a decision received too late for inclusion in this brief [United States v. Diamond Shamrock Corp., Civ. No. C80-1857 (N.D. Ohio, May 29, 1981)]. The State intends in this brief to supplement certain of those arguments without excessive duplication.

FACTUAL BACKGROUND

For over fifty-five years, Reilly Tar refined coal tar and treated wood products at an eighty acre site near Highway 7 in St. Louis Park. Reilly disposed of coal tar, creosote and other coal tar derivatives on the site. Although the industrial operations at the Reilly site ended in 1972, black oily wastes still saturate portions of the site and adjacent property.

Constituents of the Reilly Tar wastes are continually leaching into the groundwater and migrating away from the site, eventually entering the aquifer system 1/ beneath St. Louis Park and contaminating its municipal water supply. See the attached Affidavit of David J. Giese, Assistant Director of the Division of Environmental Health, Minnesota Department of Health, particularly paragraphs 21 through 25. The contaminants include a class of organic compounds, polynuclear aromatic hydrocarbons (PAH's), some of

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1/ An aquifer is an underground layer of bedrock, loose stone, sand, or soil which contains significant quantities of water. In the St. Louis Park area, the aquifer system consists of a glacial drift aquifer nearest the surface and five bedrock aquifers extending to a depth of about one thousand feet. One of the aquifers, the Prairie du Chien-Jordan aquifer, is the primary source of public water supply in St. Louis Park, Hopkins, Edina and neighboring suburban communities.

which are carcinogenic. 2/ The detection by the Minnesota Department of Health (MDH) of small amounts of these carcinogenic PAH compounds in four Prairie du Chien-Jordan wells used by St. Louis Park for municipal water supply led to closing of those wells in the fall of 1978. 3/ Detection of both carcinogenic and non-carcinogenic PAH compounds led to closing of a fifth St. Louis Park municipal well in December, 1979, and detection of non-carcinogenic PAH compounds resulted in the closing of a Hopkins municipal well in February, 1981. Both of these latter wells also withdraw water from the Prairie du Chien-Jordan aquifer.

The movement of the PAH compounds has been difficult to predict because the pathways by which the compounds reach the aquifer are not fully understood and because the operation (and closure) of wells can dramatically change the direction of groundwater flow in a short time, although the movement of the PAH compounds is better understood today as a result of the lengthy and expensive investigations by the Department of Health, the Minnesota Pollution Control Agency (PCA), the City of St. Louis Park, the U.S. Environmental Protection Agency (EPA), and the U.S. Geological Survey (USGS). 4/

In addition to closing contaminated municipal wells, the State and City have undertaken measures to limit the spread of contaminants and to design a program for their removal or permanent containment. The State has sealed off over two dozen private wells thought to be pathways, or potential pathways, for PAH compounds to reach the Prairie du Chien-Jordan aquifer. The wells are known as "multi-aquifer wells" because they are open to several aquifers

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2/ Twelve PAH compounds have been described as carcinogens by the EPA Carcinogen Assessment Group report of July 14, 1980. Five of these compounds have been detected in water samples from the Prairie du Chien-Jordan aquifer in St. Louis Park. Giese Affidavit at paragraph 16.

3/ Prior to 1978 there was no analytical equipment which could detect PAH concentrations in the low parts per trillion. Giese Affidavit at paragraph 9.

4/ These investigations are summarized in paragraphs 7 through 21 of the Giese Affidavit.

and make possible mixing of waters from different rock formations. Federal funding is being sought for further well abandonment in the vicinity of the Reilly Tar site this summer.

Removal of contaminants at the well head of municipal wells has been undertaken by the City on an experimental basis. Long term measures to confine and/or remove the chemicals found in the soils and the aquifer system are also under study by State consultants. A pilot project combining aspects of the State study and the City water treatment work has been proposed for federal funding.

ARGUMENT

I. SECTION 7003 OF RCRA ESTABLISHES A STANDARD FOR DANGERS POSED BY SOLID AND HAZARDOUS WASTES. WHERE SUCH WASTES "MAY PRESENT AN IMMINENT AND SUBSTANTIAL ENDANGERMENT TO HEALTH OR THE ENVIRONMENT," THE FEDERAL COURTS ARE EMPOWERED TO ORDER NECESSARY REMEDIAL ACTIONS.

Reilly Tar argues that Section 7003 of RCRA 5/ is no more than a grant of jurisdiction to the federal courts. It maintains that a basis for determining liability must be sought elsewhere in RCRA or in the federal common law. The State contends that the "imminent and substantial endangerment" standard of § 7003

5/ Section 7003 was amended in October, 1980, by § 25 of the Solid Waste Disposal Act Amendments of 1980. It is now codified as 42 U.S.C.A. § 6973 (a), and reads:

> (a) Authority of Administrator.-Notwithstanding any other provisions of this chapter, upon receipt of evidence that the handling, storage, treatment, transportation or disposal of any solid waste or hazardous waste may present an imminent and substantial endangerment to health or the environment, the Administrator may bring suit on behalf of the United States in the appropriate district court to immediately restrain any person contributing to such handling, storage, treatment, transportation or disposal to stop such handling, storage, treatment, transportation or disposal or to take such other action as may be necessary. The Administrator shall provide notice to the affected State of any such suit. The Administrator may also, after notice to the affected State, take other action under this section including, but not limited to, issuing such orders as may be necessary to protect public health and the environment.

does provide a substantive basis for determining liability, independent of any other regulatory or enforcement provision. This independence is established by the very first words of the section: "Notwithstanding any other provisions of this chapter . . . ." As discussed below, this imminent and substantial endangerment standard requires the Court to assess the risks which are present or suspected by balancing the seriousness of the potential harms and the probability that they will materialize. If the Court finds that its assessment of the gravity of the risks and the likelihood of their occurrence satisfies the standard, it must then grant relief against the responsible party.

This balancing approach to the statute was applied in the only decision in this Circuit under § 7003, United States v. Vertac Chemical Corporation, 489 F. Supp. 870 (E.D. Ark. 1980). In that case the court employed this approach in finding that an imminent and substantial endangerment existed, and imposed liability on Vertac. At the time of the lawsuit, Vertac had discontinued the pesticide manufacturing process which produced dioxin. 6/ The court focused its concern on small amounts of dioxin residues detected on the site and the even smaller amounts detected at isolated points off the site. It concluded that the dioxin residues posed no threat in terms of acute, or one-time exposure, and that there had been no actual harm from escape of dioxin from the site. 489 F. Supp at 876, 881. However, the court also found that the chronic toxicity of dioxin, (i.e., the effects of repeated, low-level exposure over a long period of time) gave rise to a reasonable medical concern over the risks to the public of long term exposure. 489 F. Supp at 876, 880-881. The court then turned to evaluate these findings against the legal standard of "imminent and substantial endangerment" set forth in § 7003 of RCRA and in

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6/ Dioxin is the ingredient in the defoliant "Agent Orange" alleged to have caused birth defects in children born to American military personnel and to Vietnamese who were exposed to the defoliant when it was used during the Vietnam War.

§ 504 of the Clean Water Act, 33 U.S.C. § 1364. 7/

The Vertac court first looked to the Eighth Circuit's decision in Reserve Mining Co. v. Environmental Protection Agency, 514 F.2d 492 (8th Cir. 1975)(en banc), to define the elements of "endangerment." Quoting Reserve Mining and cases cited therein, the Vertac court noted that "'endanger means something less than actual harm'". It is sufficient if "'harm is threatened; no actual injury need ever occur'". Endangerment "'is not . . . prone to factual proof alone'" but "'must be decided by assessment of risk.'" Risk, in turn, is to be assessed "'from suspected, but not completely substantiated, relationships between facts, from trends among facts, from theoretical projections . . . or from probative preliminary data.'" Vertac, supra, 480 F.Supp. at 885, quoting Reserve Mining, supra, 514 F.2d at 529.

The court in Vertac concluded that the dangers posed by chronic exposure to dioxin met the "imminent and substantial endangerment" standard, and that the dioxin contamination was thus subject to abatement under RCRA and the Clean Water Act:

> In the context of the term "endangerment" as defined in Reserve, the record shows that dioxin is escaping from the Vertac plant site in quantities that under an acceptable but unproved theory may be considered as teratogenic, mutagenic, fetotoxic, and carcinogenic. Such gives rise to a reasonable medical concern over the public health. We

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7/ Section 504(a) of the Clean Water Act has the same standard as Section 7003 of RCRA. The United States and the intervenors have not included the Clean Water Act in their complaints because the Act addresses only pollution of navigable waters. Section 504(a) reads:

> Notwithstanding any other provision of this Act, the Administrator upon receipt of evidence that a pollution source or combination of sources is presenting an imminent and substantial endangerment to the health of persons or to the welfare of persons where such endangerment is to the livelihood of such persons, such as inability to market shellfish, may bring suit on behalf of the United States in the appropriate district court to immediately restrain any person causing or contributing to the alleged pollution to stop the discharge of pollutants causing or contributing to such pollution or to take such other action as may be necessary.

> therefore hold that the escape of dioxin into Rocky Branch Creek and Bayou Meto from the plant site constitutes an imminent and substantial endangerment to the health of persons (33 U.S.C. § 1364, 42 U.S.C. § 6973) and is subject to abatement.
>
> Vertac, supra, 489 F.Supp. at 885 [footnote omitted].

Reserve Mining fully supports the Vertac conclusion that "endangerment" under RCRA, as well as under the Clean Water Act, is a substantive federal standard, independent of common law doctrines. 8/ The Eighth Circuit explicitly established the independence of the endangerment standard in affirming Reserve Mining's violation of §§ 1160(c)(5) and (g)(1) of the 1970 version of the Clean Water Act. 9/ After extensive discussion of the medical and scientific evidence, the court concluded:

> The record shows that Reserve is discharging a substance into Lake Superior waters which under an acceptable but unproved medical theory may be considered as carcinogenic. As previously discussed, this discharge gives rise to a reasonable medical concern over the public health. We sustain the district court's determination that Reserve's discharge into Lake Superior constitutes pollution of waters "endangering the health or welfare of persons" within the terms of §§ 1160(c)(5) and (g)(1) of the Federal Water Pollution Control Act and is subject to abatement.[71]
>
> Reserve Mining, supra, 514 F.2d at 529

In footnote 71, at the end of the quoted paragraph, the court made clear that the standard it was applying was independent of common law nuisance doctrine:

> 71. We are not here concerned with standards applied to abatement of a nuisance under non-statutory common law doctrines. In most common law nuisance cases involving alleged harmful

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8/ In arguing for the independence of the "endangerment" standard, the State does not quarrel with the United States' contention that nuisance law and other statutory law may aid the courts in their interpretation of the standard. United States' Memorandum in Opposition at 9-10. There is a great difference, however, between the use of other law to put a "gloss" on a federal statutory standard and the construction that § 7003 is only jurisdictional and substantive standards for determining liability must be sought elsewhere. The latter construction is discussed in note 10, infra.

9/ 33 U.S.C. § 1160 (g)(1) (1970) authorized suit by the United States to abate "pollution of waters which is endangering the health or welfare of persons." This provision was deleted as part of the major revisions accomplished by the Federal Water Pollution Control Act Amendments of 1972.

> health effects some present harm or at least an immediate threat of harm must be established.
>
> Id. [citations omitted and emphasis added]

Because of this holding there can be no dispute that in the Eighth Circuit the words "imminent and substantial endangerment" establish an independent statutory basis for determining liability for threats to public health and the environment. 10/

10/ Two district court decisions from outside the Eighth Circuit have ruled that § 7003 is only jurisdictional and does not establish an independent statutory basis for determining liability. United States v. Solvents Recovery Service of New England, 496 F.Supp. 1127 (D. Conn. 1980); United States v. Midwest Solvent Recovery, Inc., 484 F.Supp. 138 (N.D. Ind. 1980). These decisions contain no discussion of the Eighth Circuit's holding in Reserve Mining Co. v. Environmental Protection Agency, 514 F.2d 472 (1975)(en banc), that the "endangering the health or welfare" provision of the Clean Water Act established a substantive standard of liability. Examination of the rationale used by these district courts does not suggest a need to reconsider the Reserve Mining holding in the § 7003 context.

The court in Midwest Solvent Recovery set forth three reasons that led it to interpret § 7003 as only a jurisdictional grant. 484 F.Supp at 143-144. First, the section is included among the miscellaneous provisions of RCRA rather than among the regulatory provisions; second, the section is an adjunct to the citizen suit provision of § 7002 and serves to confer standing on the United States which is not granted by § 7002; and, third, if substantive, the section imposes liability upon such a broad group of persons that Congress would surely have indicated such an intention in the legislative history of the Act. The court in Solvents Recovery cited Midwest Solvent Recovery but added no further reasons. 496 F. Supp at 1133-34.

None of these arguments is of sufficient weight to call for reevaluation of the Reserve Mining holding. First, the location of § 7003 in the miscellaneous provisons of RCRA is consistent with the location of the emergency powers provisions of the Clean Air Act (42 U.S.C. § 7603), the Safe Drinking Water Act (42 U.S.C. § 300i) and the Clean Water Act (33 U.S.C. § 1364) and, as explained in the United States' Memorandum at 14-15, demonstrates that § 7003 was to be broad in scope and not confined to enforcement of the regulatory scheme of Subchapter II of RCRA. Second, enforcement of Subchapter II is expressly covered by § 3008 of RCRA, 42 U.S.C. § 6928, and no parallel provision to § 7002 is required to grant the United States standing under RCRA. Finally, the wide range of persons liable under § 7003 reflects the Congressional recognition that hazardous wastes may pass through many hands in the ordinary flow of commerce. See United States' Memorandum at 33-34, quoting H. R. Rep. No. 94-1491. Moreover, in a recent enactment dealing with the same subject matter, Section 107 (a) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 [42 U.S.C.A. §9607 (a) (1981)], Congress has reaffirmed that all persons who deal with hazardous substances, whether they are involved in its generation, transport, treatment, or disposal, are liable for the consequences of its release into the environment.

II. A CLAIM OF "IMMINENT AND SUBSTANTIAL ENDANGERMENT" IS ADEQUATELY STATED BY THE ALLEGATION THAT CARCINOGENIC AND TOXIC SUBSTANCES FROM REILLY TAR'S OPERATIONS HAVE CONTAMINATED A MAJOR GROUNDWATER AQUIFER WHICH PROVIDES MUCH OF THE MUNICIPAL WATER SUPPLY FOR ST. LOUIS PARK.

The State's Amended Complaint in Intervention, particularly paragraphs 8-11, 11/ alleges (1) that Reilly Tar's operations have resulted in extensive contamination of soil and groundwater by chemicals found in the coal tar and coal tar derivatives used at the company's site; (2) that certain of the chemicals which have reached the groundwater are established carcinogens or co-carcinogens; (3) that the danger to the public from consuming water contaminated with these chemicals has caused the closing of five St. Louis Park municipal wells; and (4) that the chemicals in the groundwater continue to migrate, threatening contamination of additional drinking water supplies. Developments since the filing of the original State and federal complaints have confirmed the dangers of further spread of contaminants. 12/ Contrary to the argument made at pages 48-53 of the Reilly Tar Memorandum, these allegations are sufficient to state a claim for imminent and substantial endangerment.

All the allegations of the Complaint in Intervention must be accepted as true for purposes of the present motion to dismiss, Conley v. Gibson, 355 U.S. 41, 45-46 (1957), and all reasonable inferences from the pleading must be drawn in the State's favor. Park View Heights Corp. v. City of Black Jack, 467 F.2d 1208, 1212n.3 (8th Cir. 1972). Under this procedural principle, the Court must conclude that the presence of proven carcinogens in wells

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11/ Paragraph 8 incorporates by reference paragraphs 5 through 22 of the United States' Complaint which include a description of the endangerment to health and the environment created by the activities of Reilly Tar.

12/ The Giese Affidavit describes the ongoing monitoring of municipal water supplies in St. Louis Park and nearby communities. This monitoring has resulted in the closing of Hopkins Municipal Well #3 in February, 1981, because of the presence of non-carcinogenic PAH compounds. The PAH compounds found in this well are believed to have migrated from the Reilly site, although further monitoring and investigation will be necessary to develop a complete understanding of this contamination problem.

providing municipal water supply to St. Louis Park constitutes an "endangerment" as that standard has been defined in Reserve Mining.

Section 7003 of RCRA, unlike the former Clean Water Act provision at issue in Reserve Mining, also requires that the "endangerment" be "imminent and substantial". The court in Vertac found the danger from dioxin contamination to be "imminent and substantial" after concluding:

> While there may be a low probability of harm from dioxin as defendants contend, there is a serious and dire risk from exposure to dioxin should the hypotheses advanced by the plaintiffs prove to be valid.
>
> Vertac, supra, 489 F. Supp at 885.

Implicit in this finding of imminent and substantial endangerment was a balancing of the seriousness of the possible harm and the probability of its occurrence.

The seriousness, or "substantiality," of the threat to health and the environment in the present case requires no elaboration. The threat of carcinogens, known or suspected, entering a municipal water system is serious. In this case, known carcinogens have already contaminated the Prairie du Chien-Jordan aquifer which supplies most of St. Louis Park, causing the closure of municipal wells and the consequent loss of approximately 35 percent of the total design capacity of the St. Louis Park water supply system. Furthermore, the Prairie du Chien-Jordan aquifer supplies drinking water for many of the suburbs in the Twin Cities area, with some half million people relying on the aquifer for their supply of drinking water.

In terms directly applicable to this situation, the House Interstate and Foreign Commerce Committee explained the meaning of "substantial" in the parallel "imminent and substantial endangerment" provision of § 1431 of of the Safe Drinking Water Act (42 U.S.C. § 300i):

> Among those situations in which the endangerment may be regarded as "substantial" are the following: (1) a substantial likelihood that contaminants capable of causing adverse health effects will be ingested by consumers if preventive action is not taken; (2) a substantial statistical probability that disease will

> result from the presence of contaminants in drinking water; or (3) the threat of substantial or serious harm (such as exposure to carcinogenic agents or other hazardous contaminants).
>
> H.R. Rep. No. 93-1185, 93rd Cong., 2d.Sess. 36, reprinted in [1974] U.S. Code Cong. & Ad News 6454, 6488.

The likelihood, or "imminence," of a threat requires more elaboration. An imminent endangerment is one that is likely to materialize, even though the occurrence may be far off in time. This distinction was expressly recognized in a recent decision under § 7003. In denying a motion to dismiss the government's complaint for failure to allege an "imminent and substantial endangerment," the court in United States v. Royal N. Hardage, Civ-80-1031-W (W.D. Okla. filed December 2, 1980) at 3-4, 13/ observed:

> . . . that the imminence of a hazard does not depend on the proximity of the final effect but may be proven by the setting in motion of a chain of events which would cause serious injury. See, e.g., Environmental Defense Fund v. EPA, 465 F.2d 528, 535 (D.C. Cir. 1972)

This concept of imminence has also been recognized in tort law. In discussing when a "threatened tort" is sufficient to justify injunctive relief, the Restatement (Second) of Torts, § 933(1), comment b, uses the terms "imminent" and "likely to materialize" interchangeably:

> b. Threatened tort. The expression 'threatened tort' as used in Subsection (1) of this Section contemplates, as a condition for the grant of an injunction, a threat of sufficient seriousness and imminence to justify coercive relief. The seriousness and imminence of the threat are in a sense independent of each other, since a serious harm may be only remotely likely to materialize and a trivial harm may be quite imminent. Yet the two elements must be considered together in the decision of any given case. The more serious the impending harm, the less justification there is for taking the chances that are involved in pronouncing the harm too remote. [Emphasis added.]

If neglected, the present groundwater contamination in St. Louis Park would likely result in increased cases of cancer,

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13/ A copy of this decision is appended to the United States Memorandum.

after a long latency period. 14/ The imminence of this sort of endangerment was expressly recognized in the House Interstate and Foreign Commerce Committee Report on Section 1431 of the Safe Drinking Water Act:

> Furthermore, while the risk of harm must be "imminent" for the Administrator to act, the harm itself need not be. Thus, for example, the Administrator may invoke this section when there is an imminent likelihood of the introduction into drinking water of contaminants that may cause health damage after a period of latency.
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> H.R. Rep. No. 93-1185, supra, at 36, reprinted in [1974] U.S. Code Cong. & Ad. News at 6488.

An imminent endangerment to the health of the residents of St. Louis Park and surrounding communities exists today.

Imminence in the context of damage to the environment is demonstrated by the damage already done to the aquifer supplying drinking water in St. Louis Park 15/ and by the threat that this type of damage will spread within that aquifer and to deeper aquifers if remedial responses are not pursued. Imminent endangerment is thus alleged in both the environmental and health contexts.

The introduction of carcinogens into the Prairie du Chien-Jordan aquifer, the resulting loss of public water supplies,

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14/ This concept of a latency period is discussed in the context of asbestos-related disease pathology in Reserve Mining Co. v. Environmental Protection Agency, 514 F.2d. 492, 508 (8th Cir. 1975)(en banc). In a subsequent decision assessing costs of temporary filtration of municipal water supplies on Reserve Mining, Chief Judge Devitt emphatically rejected the argument that future risks could not support such relief:

> It is not required by law, or by common sense, that illness and death are conditions precedent to taking preventive measures against such a health hazard.
>
> United States v. Reserve Mining Co., 408 F.Supp. 1212, 1216 (D. Minn. 1976).

15/ As the discussion of Wyandotte Transportation Co. v. United States, 389 U.S. 191 (1967), in part IV of this memorandum suggests, the policy underlying § 7003 dictates that the extent to which the endangerment has been reduced by actions already taken by the State and City should in no way relieve Reilly Tar of the responsibility it would otherwise bear under this law.

and the threat of further spread of these contaminants make the imminence of harm in this case much greater than that found sufficient to justify relief in Reserve Mining and Vertac. The process of balancing the gravity of the risk and the likelihood of its occurrence which was utilized in those decisions should also be applied here. Those courts summarized their assessments as follows:

> In assessing probabilities in this case, it cannot be said that the probability of harm is more likely than not. Moreover, the level of probability does not readily convert into a prediction of consequences. . . The best that can be said is that the existence of this asbestos contaminant in air and water gives rise to a reasonable medical concern for the public health. . . Such a contaminant should be removed.
>
> Reserve Mining, supra, 514 F.2d at 520.
>
> On the record, the best that can be said is that the existence of dioxin . . . gives rise to a reasonable medical concern for the public health. The public exposure to dioxin creates some health risk. As much as humanly possible this risk must be removed.
>
> Vertac, supra, 489 F.Supp. at 880-881.

Both of these courts resolved the uncertainty as to future harm in favor of abatement of the hazard. They implicitly recognized, as another court has observed, that "[a] court of equity will not gamble with human life, at whatever odds, and for loss of life there is no remedy that in an equitable sense is adequate." Harris Stanley Coal and Land Co. v. Chesapeake and Ohio Ry. Co., 154 F.2d 450, 453 (6th Cir. 1946).

In this case, the Court does not yet have a factual record and must accept the allegations of the several complaints as fact for purposes of the present motion to dismiss. On these strong allegations of threats to public health and the environment, the Court must conclude that an imminent and substantial endangerment exists.

III. EVEN THOUGH ITS INDUSTRIAL ACTIVITY AT THE ST. LOUIS PARK SITE CEASED IN 1972, REILLY TAR REMAINS LIABLE UNDER SECTION 7003 FOR CONDITIONS IT CREATED WHICH NOW PRESENT AN IMMINENT AND SUBSTANTIAL ENDANGERMENT.

Section 7003, as amended, authorizes suit by the United States "upon receipt of evidence that the handling, storage, treatment, transportation or disposal of any solid waste or

hazardous waste may present an imminent and substantial endangerment to health or the environment". Reilly Tar urges this Court to add the limiting adjectives "present" or "ongoing" before "handling, storage, treatment, transportation, or disposal". Reilly Tar Memorandum at 13-39. The State and the United States maintain that the section reaches past or present "handling, storage, treatment, transportation, or disposal". 16/ Whatever ambiguity may exist as to this point can be resolved by reference to the problem Congress sought to address and to long standing principles of common law. In addition, both federal district courts which have ruled on § 7003 actions involving discontinued practices have found, expressly or by implication, that current conditions resulting from such practices are subject to abatement. United States v. Solvents Recovery Service of New England, supra; United States v. Vertac Chemical Corp., supra.

A. THE OBJECTIVES AND POLICY UNDERLYING SECTION 7003 REQUIRE IMPOSITION OF LIABILITY FOR DISCONTINUED PRACTICES CAUSING CURRENT ENDANGERMENT, AS THE DECISIONS IN VERTAC AND SOLVENTS RECOVERY CONCLUDED

The goal of all statutory interpretation is fulfilling the intent of the legislature. In ascertaining intent, the objectives and policy underlying the statute are the most important touchstones. See, e.g., Stafford v. Briggs, 444 U.S. 527, 535-536 (1980); 17/ Train v. Colorado Pub. Int. Research Group, 426 U.S. 1,

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16/ The United States also argues that even if the limiting construction is accepted Reilly Tar remains liable because the continued leaking of coal tar compounds from the soil into the groundwater constitutes ongoing disposal. United States Memorandum at 13. The State agrees with this argument but believes it is unnecessary for the Court to reach it because § 7003 addresses all current conditions presenting imminent hazards, including those caused by discontinued industrial practices.

17/ Reilly Tar cites this decision in support of its argument that, literally read, Section 7003 addresses only present waste management practices. Reilly Tar Memorandum at 14,17. This support is not well-founded because the decision rejected a literal interpretation given the words "a civil action" in the Mandamus and Venue Act of 1962 by the First Circuit and D.C. Circuit, and instead looked to Congressional objectives and policy in construing "a civil action" to exclude civil damage actions against federal personnel. The

9-10 (1976); Philbrook v. Glodgett, 421 U.S. 707, 713 (1975).

The basic objective of RCRA is to control and ultimately eliminate the adverse effects of solid and hazardous waste management in the United States. A detailed program of regulation and enforcement was created to achieve this purpose. The enforcement scheme of § 7003 is an essential element of this program, addressing the most urgent and critical problems resulting from management of such wastes. Although contemporaneous legislative history directed specifically to Section 7003 is lacking, 18/ the objectives behind § 7003 can nonetheless be inferred from the nature and origins of the problems with which Congress was confronted at the time of enactment.

The Ninety-Fourth Congress which enacted RCRA recognized that improper waste disposal led to groundwater contamination which might not be discovered until years afterward. The Report of the House Committee on Science and Technology stated:

> Disposal of solid wastes, including hazardous wastes, can have adverse environmental impact in several ways. The following paragraphs discuss

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Supreme Court cautioned against literal construction which overlooks the objectives of Congress:

> The language of § 1391(e) does refer to "a civil action". Recitation of that fact, however, but begins our inquiry, as this Court noted over a century ago when faced with a similar problem of statutory interpretation:
>
> > "The general words used in the clause . . . taken by themselves, and literally construed, without regard to the object in view would seem to sanction the claim of the plaintiff. But this mode of expounding a statute has never been adopted by any enlightened tribunal--because it is evident that in many cases it would defeat the object which the Legislature intended to accomplish. And it is well settled that, in interpreting a statute, the court will not look merely to a particular clause in which general words may be used, but will take in connection with it the whole statute . . . and the object and policy of the law. . ." Brown v. Duchesne, 60 U.S. (19 How) 183, 194, 15 L.Ed. 595 (1857).

Stafford v. Briggs, 494 U.S. 527, 535 (1980).

18/ See United States Memorandum at 16. Reilly Tar Memorandum at 20-23.

> five different types of such impacts.
>
> (i) Perhaps the most pernicious effect is the contamination of groundwater by leachate from land disposal of waste. About half of the U.S. domestic water supply is from underground water, and thus is potentially subject to contamination. Such contamination is especially vexing because often it is discovered after the damage is done and because the contamination is very long lasting. Thus leachate from a landfill or dump may not show up for years, maybe not even until after the landfill has been closed. However, once a contaminant is in an aquifer it can take decades or centuries to migrate out. Such considerations may make it difficult if not impossible to assign responsibility and recover damages or costs of rectifying the situation.
>
> H.R. Rep. No. 94-1491, 94th Cong., 2d Sess. 89, reprinted in [1976] U.S. Code Cong. & Ad. News 6238, 6325.

As illustrated in discussion of the need for a hazardous waste regulatory program in the Report of the House Committee on Interstate and Foreign Commerce, the Congress was aware that many sites with urgent hazardous waste problems represented the consequences of waste disposal which had been discontinued. Examples of such problem sites are listed in the footnote below. 19/

19/ The Committee Report contained seven pages briefly listing examples of the dangers of improper hazardous waste disposal, adding, "Far more cases could be cited, even more have gone unreported." H.R. Rep. 94-1491, 94th Cong., 2d Sess. 17, reprinted in [1976] U.S. Code Cong. & Ad News 6238, 6254. The excerpts below from the Committee's list illustrate discontinued disposal practices resulting in subsequent endangerment to health or the environment:

> NEW JERSEY
> * * *
>
> Hackensack Meadowlands, Bergen County 1974
> A one acre plant site was used as a dump for mercury wastes. There is approximately 200,000 lbs of toxic mercury at the former plant site.
>
> Camden, Camden County 1972
> Over 8,000 lbs of poison (arsenic) were discovered in a 17 acre abandoned factory complex.
>
> Perth Amboy, Middlesex County 1967
> A plant recovering metals from waste stockpiled raw materials (zinc, lead, sodium) in the open and metals subsequently leachated into surface ground water causing a portion of the public water supply wells to be closed in 1971 and 1972.
>
> Mantua Township, Gloucester County 1970
> During the 1960's a landfill in Mantua accepted miscellaneous industrial wastes which eventually leachated and entered the Chestnut branch of Mantua Creek and also polluted the groundwater system.

Amid this background, Congress passed § 7003 in order to protect public health and the environment from imminently hazardous conditions resulting from waste management practices and to hold accountable the persons responsible for those practices. Its paramount concern in § 7003 was abatement of the hazardous conditions. Since Congress knew past practices to be a frequent cause of these hazardous conditions, the only reasonable inference to draw as to legislative intent is that Congress wanted to authorize suits against the party responsible without regard to whether the offending practices had been discontinued. Judicial construction of § 7003 has followed this view.

In United States v. Vertac Chemical Corp., supra, the court granted relief against conditions resulting entirely from past practices. It found that Vertac was responsible under § 7003 even though it was no longer producing the chemical dioxin 20/ and even

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> ILLINOIS
> * * *
> Galena, Jo Daviess County
> Between 1966 and 1968 a mining company discharged waste water into an abandoned shaft of a lead-zinc mine. As a result the Galena-Platteville aquifer was contaminated.
>
> NEW YORK
> * * *
> Olean, Cattaraugus County
> A burial of chromium-bearing plating wastes resulted in the leachate caused pollution of a domestic well 450 feet from the burial site
>
> MINNESOTA
> * * *
> Perham, 1972
> Arsenic wastes buried 30 years ago on agricultural land contaminated a drinking water well. Several persons using the well as a water supply were hospitalized for arsenic poisoning.
>
> IOWA
> * * *
> Waterloo, 1973
> A laboratory company dumped over 250,000 gallons of arsenic bearing wastes. The dump site was located above a limestone bedrock aquifer from which residents of nearby towns obtain 79 per cent of their drinking and irrigation water. The aquifer is presently uncontaminated but the potential contamination cannot be underestimated.
>
> Id., at 17-22, [1976] U.S. Code Cong. & Ad. News at 6255-59.

20/ United States v. Vertac Chemical Corp., 489 F. Supp. 870, 887 (E.D. Ark. 1980).

though much of the current pollution threat resulted from waste disposal prior to 1971 by two prior owners of the pesticide plant. 21/

Citing Vertac, the court in United States v. Solvents Recovery Service, supra, considered and rejected the contention that § 7003 was limited to ongoing activities. It noted that the order in Vertac "required the defendant to contain pollution that could only be traced to acts of disposal antedating the filing of the complaint." 496 F.Supp at 1140. It concluded that this was the correct result based on subsequent legislative comments, 22/ on application of nuisance law, 23/ on the broad relief authorized by the section, and on the absence of statutory language limiting the scope to current activities. The court noted that the relief authorized includes not only restraining practices which caused the hazardous condition but also "'[taking] such other actions as may be necessary to abate the imminent hazard.'" 496 F.Supp at 1140. It construed this additional remedy as indicating

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21/ The prior owners, Reasor-Hill and Hercules, had manufactured pesticides at the plant from the mid-1950's to 1961 and from 1961 to 1971, respectively. Vertac, supra, 489 F.Supp at 873-874. Hercules was named a defendant but the court declined to rule on the request for relief against Hercules because voluntary payments from Hercules to Vertac appeared likely to provide the relief sought against Hercules. 489 F.Supp. at 888.

22/ The subsequent legislative comment is discussed in the United States' Memorandum at 17-20. A subsequent legislative enactment directed to the same or similar subject may also be a guide where the statute in question is silent. Cosmetic, Toiletry and Fragrance Association v. State of Minnesota, 440 F.Supp. 1216, 1221-1222 (D. Minn. 1977), aff'd 575 F.2d. 1256 (8th Cir. 1978); 2A J. Sutherland, Statutes and Statutory Construction § 51.03 at 298-300 (4th ed. Sands ed. 1973). In this instance the most recent Congressional response to the hazardous waste problem expressly imposes liability on "any person who at the time of disposal of any hazardous substance owned or operated any facility at which such hazard substances were disposed of." § 107(a)(2), Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (the "Superfund Act"), 42 U.S.C.A. § 9607 (a)(2)(1981).

23/ As noted, at note 10, supra, the Solvents Recovery court found that § 7003 was not a basis of substantive liability. It concluded that liability could be premised on federal common law nuisance. The State argues that § 7003 is an independent basis for determining liability and resort to federal common law is unnecessary for this purpose. However, as discussed in Part III.B. immediately below, the State contends that nuisance law can be an aid in interpreting Congressional intent as to discontinued waste management practices causing current conditions of imminent hazard.

Congressional intent to reach past practices because it signified that § 7003 could be invoked "even where a simple restraining order would be unavailing because the defendants had already desisted from the disposal practices which caused the pollution." Id. The court also relied on the literal wording of § 7003 which does not "discriminate between cases of a present harm caused by past disposal practices and cases of a present harm caused by ongoing disposal practices." Id.

The Solvents Recovery and Vertac holdings are totally consistent with the view that the Congressional objective in § 7003 was to address present conditions of imminent hazard, without regard to when the waste management practices occurred which caused the hazardous condition.

B. SECTION 7003 SHOULD BE CONSTRUED CONSISTENT WITH COMMON LAW NUISANCE DOCTRINE TO REACH CURRENT CONDITIONS RESULTING FROM PAST WASTE MANAGEMENT ACTIVITIES.

Where a statute on its face does not clearly address a particular circumstance, it is appropriate to examine analogous common law principles for guidance on the question of statutory interpretation. A leading treatise states:

> Public policy that is rooted in the common law appears to have extraordinary strength and vitality, as suggested, at least inferentially, by the tenacity with which some courts have adhered to the rule that statutes in derogation of the common law are to be strictly construed. Likewise, the courts are inclined to interpret a statute in conformity to common-law concepts where the letter of the statute is silent in regard to certain consequences which are analogous to situations governed by common law principles.
>
> 2A J. Sutherland, Statutes and Statutory Construction § 56.03, at 407 (4th ed. Sands ed. 1973) (emphasis added and footnote omitted).

Environmental statutes have frequently been viewed as analogous to common law doctrines such as nuisance, strict liability, and trespass. See, N.J. Transportation Dept. v. PSC Resources, 175 N.J. Super. 447, 419 A.2d 1151 (N.J. Super. Ct. 1980); W. Rodgers, Jr., Environmental Law §§ 2.1, 2.14 at 100, 162 (1977); United States' Memorandum at 24-25. A 1979 Senate Environment and Public Works Committee report on proposed RCRA

amendments connects § 7003 to common law public nuisance:

> Like other imminent and substantial endangerment provisions in environment statutes, (e.g., Section 504 of the Clean Water Act, Section 303 of the Clean Air Act, and Section 1431 of the Safe Drinking Water Act), section 7003 is essentially a codification of common law public nuisance remedies . . .
>
> Section 7003, therefore incorporates the legal theories used for centuries to assess liability for creating a public nuisance (including intentional tort, negligency, and strict liability) and to determine appropriate remedies . . .
>
> S. Rep. No. 96-172, 96th Cong. 1st Sess 5 (1979).

It is, therefore, useful to look to common law doctrine in considering the application of § 7003 to current hazardous conditions resulting from past waste management practices.

It is well established at common law that a defendant may be liable for a continuing nuisance even though he is no longer engaging in any affirmative conduct. Skinner v. Great Northern Ry., 129 Minn. 113, 117, 151 N.W. 968, 969 (1915) (flooding from dam construction); Bowers v. Mississippi & Rum River Boom Co., 78 Minn. 398, 402-03, 81 N.W. 208, 209-210 (1899) (construction of pilings established continuing nuisance due to erosion of plaintiff's land by ice); Sloggy v. Dilworth, 38 Minn. 179, 182-183, 36 N.W. 451, 452 (1888) (flooding from embankment construction); Nelson v. C & C Plywood Corp., 154 Mont. 414, 465 P.2d 314, 324-325 (1970) (well contamination from glue waste disposal). Moreover, a defendant who has caused a continuing nuisance remains liable for successive actions for damages and cannot release himself by conveying the nuisance to another through a voluntary deed. Sloggy v. Dilworth, supra, 38 Minn. at 182, 36 N.W. at 452.

Interpretation through recourse to common law analogues thus supports the view that Congress intended § 7003 to reach current hazardous conditions caused by past waste management practices. This common law background, Congressional awareness in 1976 of problems caused by past practices, Congressional developments since 1976, and the consistent application of the law to past practices in Vertac and Solvents Recovery demonstrate that Reilly Tar is responsible under § 7003 for conditions it created between

1917 and 1972 which now present an imminent and substantial endangerment to health and the environment.

IV. WHERE SECTION 7003 HAS BEEN VIOLATED APPROPRIATE RELIEF CAN INCLUDE MONITORING AND DEFINING THE EXTENT OF CONTAMINATION, CONTAINMENT AND REMOVAL OF CONTAMINANTS, PROVISION OF SAFE MUNICIPAL DRINKING WATER SUPPLIES, AND REIMBURSEMENT OF GOVERNMENT EXPENDITURES FOR THESE PURPOSES.

As an alternative to dismissal of the § 7003 claims, Reilly Tar has moved for an order striking paragraphs 3 through 9 of the United States' Prayers for Relief. Paragraphs 2 through 7 of the State's Prayers for Relief substantially duplicate paragraphs 4 through 9 of the relief sought by the United States. In these pleadings, the State and the United States seek a mandatory injunction requiring monitoring and definition of the extent of soil and groundwater contamination, removal and/or containment of coal tar chemicals in the soil and groundwater, restoration of contaminated municipal drinking water supplies or provision of alternative suplies, and reimbursement of state and federal expenditures for all of these purposes. The United States has argued that such relief is supported by the "take such other action as may be necessary" clause of § 7003, by legislative comment, and by the three reported decisions under the statute. United States Memorandum at 41-44. The State joins in these arguments and wishes to point out additional case law supporting the power of this Court to grant mandatory relief against Reilly Tar.

In district court proceedings following the Eighth Circuit's ruling in Reserve Mining Co. v. Lord, 529 F.2d 181 (8th Cir. 1976), the United States sought reimbursement of interim costs of filtering and furnishing safe drinking water to several communities on Minnesota's North Shore. Although the applicable provisions of the pre-1972 Clean Water Act did not expressly provide for recovery of costs or damages, the district court (Devitt, C.J.) ruled that "the federal court's equitable powers to implement its judgments" justified assessment of these costs

against the mining company. 24/ United States v. Reserve Mining Co., 408 F.Supp. 1212 (D. Minn. 1976). The court stated:

> It is settled that the courts may fashion appropriate relief, including mandatory relief, when a violation of federal law has been established. See Wyandotte Transportation Co. v. United States, 389 U.S. 191, 88 S.Ct. 379, 19 L.Ed.2d 407 (1967); United States v. Republic Steel Co., 362 U.S. 482, 80 S.Ct. 884, 4 L.Ed.2d 903 (1960); United States v. Rohm and Haas, 500 F.2d 167 (5th Cir. 1974) cert. denied, 420 U.S. 962, 95 S.Ct. 1352, 43 L.Ed.2d 439, 43 L.W. 3472; United States v. Armco Steel Co., 333 F.Supp. 1073 (S.D. Tex. 1971).
>
> Id. at 1214.

Wyandotte Transportation Co. v. United States, 389 U.S. 191 (1967) and United States v. Republic Steel Co., 362 U.S. 402 (1960), the two Supreme Court cases cited in this quotation, illustrate the broad power of federal courts to fashion equitable relief where federal law has been violated. Wyandotte involved two barges sunk in navigable waters in violation of § 15 of the Rivers and Harbors Act, 33 U.S.C. § 409. The United States removed one sunken barge containing dangerous chlorine gas and brought an action for reimbursement for costs incurred in the removal. Rejecting the argument that the Rivers and Harbors Act did not specifically authorize injunctive relief or the recovery of removal costs, the Supreme Court noted that the remedies and procedures specified in the Rivers and Harbors Act were not the exclusive remedies. Wyandotte, supra, 389 U.S. at 204. The Court reasoned that imposition on the defendant of the costs of removing the sunken barge best served Congressional policy and basic principles of fairness:

> The Government may in our view, seek an order that a negligent party is responsible for rectifying the wrong done to maritime

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24/ The court also found support for this decision in the statutory grant of equitable powers in 33 U.S.C. § 1160(h) of the Federal Water Pollution Control Act (the pre-1972 "Clean Water Act"). However, as noted in the text which follows, this ruling was not dependent on the statutory provision but was founded on analogous Supreme Court decisions under the Rivers and Harbors Act which did not involve provisions like § 1160(h).

> commerce by a § 15 violation. Denial of such a remedy to the United States would permit the result, extraordinary in our jurisprudence of a wrongdoer shifting responsibility for the consequences of his negligence onto his victim . . . We do not believe that Congress intended to withhold from the Government a remedy that ensures the full effectiveness of the Act.
>
> . . . Having properly chosen to remove such a vessel, the United States should not lose the right to place responsibility for removal upon those who negligently sank the vessel.
>
> Id. (citations omitted)

Wyandotte, in turn, relied on the Republic Steel ruling that remedies not specifically defined in a statute can be inferred from the overall Congressional intent. Republic Steel was an action by the United States seeking a mandatory injunction requiring the defendant industries to dredge a channel whose navigability had been limited by settling of waste particles discharged by the defendants. The Supreme Court rejected the argument that the prohibition of certain structures as obstructions to navigation in § 10 of the Rivers and Harbors Act necessarily excluded injunctive relief against other kinds of obstructions such as sedimentation resulting from industrial waste discharges. 25/ As later summarized in Wyandotte, the Court concluded:

> We decided that the Government might seek injunctive relief to compel removal of such an obstruction, even though such relief was nowhere specifically authorized in the Act. . .. In referring to the Act, we noted that "Congress has legislated and made its purpose clear; it has provided enough federal law in § 10 from which appropriate remedies may be fashioned even though they rest on inferences. Otherwise we impute to Congress a futility inconsistent with the great design of this legislation."
>
> Wyandotte, supra, 389 U.S. at 203, quoting Republic Steel, supra, 362 U.S. at 492

In the case at bar, the propriety of mandatory injunctive

25/ The unsuccessful argument that the only relief available was removal of certain structures enumerated in the Act is fully developed in Justice Harlan's dissent. United States v. Republic Steel Corp., 362 U.S. 482, 493 (1962).

relief and reimbursement of government expenditures is less open to question than in Wyandotte or Republic Steel because of the § 7003 authorization to order "such other action as may be necessary." The filtration order in Reserve Mining provides an example in this district of equitable power used to hold a company which has created a hazard by its waste discharges "responsible for removing the potential disease producing [substances] they have spread into the public drinking water." United States v. Reserve Mining Co., supra, 408 F.Supp at 414. The § 7003 objective of fully remedying hazardous conditions and the Court's equitable power to grant fair and thorough relief for federal law violations dictate that the mandatory injunction and reimbursement of costs sought by the State and the United States in this action are are appropriate relief.

V. CONCLUSION

For the reasons stated herein, the State of Minnesota submits that the motion of Reilly Tar to dismiss the State's claim under § 7003 of RCRA, or to strike certain of the State's prayers for relief, should be denied.

Dated: June 15, 1981.

Respectfully submitted,

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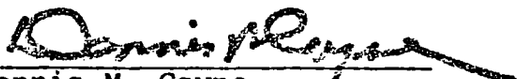
By 
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UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA
FOURTH DIVISION

UNITED STATES OF AMERICA,

Plaintiff,

and

STATE OF MINNESOTA, by its Attorney General Warren Spannaus, its Department of Health, and its Pollution Control Agency,

Plaintiff-Intervenor,

v.

REILLY TAR & CHEMICAL CORPORATION; HOUSING AND REDEVELOPMENT AUTHORITY OF ST. LOUIS PARK; OAK PARK VILLAGE ASSOCIATES: RUSTIC OAKS CONDOMINIUM INC.; and PHILIP'S INVESTMENT CO.,

Defendants.

and

CITY OF ST. LOUIS PARK,

Plaintiff-Intervenor,

v.

REILLY TAR & CHEMICAL CORPORATION,

Defendant.

Civil No. 4-80-469

AFFIDAVIT OF DAVID J. GIESE

I, David J. Giese, being first duly sworn on oath, depose and say that:

1. I am the Assistant Director of the Division of Environmental Health of the Minnesota Health Department (hereinafter "MDH"), 717 Delaware St., S.E., Minneapolis, Minnesota 55440. The Division of Environmental Health administers programs relating to drinking water supplies in the State, by enforcing existing state and federal drinking water standards and by assessing levels of risk for persons exposed to potentially harmful substances found in drinking water.

2. Since 1976, I have had varying administrative responsibilities relating to supervision of all the programs administered by the Division. In particular I have been instrumental in setting division policy and overseeing its implementation as the policy relates to the administration of drinking water supply programs. I have been directly responsible for, or heavily involved in, policy decisions concerning the Division's technical and regulatory responsibilities in the resolution of the problem of coal tar and creosote contamination of the St. Louis Park water supply.

Activities of the Minnesota Department of Health

3. The MDH has an overall responsibility to protect the health of the residents of Minnesota through the enforcement of environmental regulations pertaining to water, food, shelter, occupational health, and radiation. In particular, the MDH regulates and monitors the community and non-community public water supplies of the State and administers the federal Safe Drinking Water Act of 1974, 42 U.S.C. §§ 300f, et seq. for the U.S. Environmental Protection Agency in Minnesota, and the Minnesota Safe Drinking Water Act, Minn. Stat. §§144.381, et seq. (1980).

4. There are 976 community public water supplies in Minnesota, of which 936 completely rely on groundwater as the only source. In terms of population, approximately 75 percent of Minnesotans rely on groundwater for their supply of drinking water. In the Twin Cities metropolitan area, approximately half the residents utilize groundwater as the source of drinking water. Recognizing that groundwater is such an important resource and that contamination problems are difficult to identify, to assess and to mitigate, the MDH has adopted a strong policy of groundwater protection.

Importance of the Prairie du Chien-Jordan Aquifer

5. Approximately 80 percent of the groundwater utilized in the Twin Cities metropolitan area is withdrawn from the Prairie du Chien-Jordan aquifer. This aquifer, found at an approximate depth of between 250 feet and 510 feet below the surface of the ground, is the primary source of public water supply in St. Louis Park, Hopkins, Edina and other suburban communities in the Twin Cities area. Accordingly, some half million people rely on the Prairie du Chien-Jordan aquifer for their supply of drinking water. A stratigraphic column depicting the Prairie du Chien and Jordan formations and other geologic units in the Twin Cities metropolitan area is attached as Exhibit No. 1.

Public Water Supply of St. Louis Park

6. The City of St. Louis Park relies entirely on groundwater as a source of drinking water. St. Louis Park has 14 public water supply wells, 5 of which have been closed due to water contamination. Of the 14 wells in St. Louis Park, 10 withdraw water from the Prairie du Chien-Jordan aquifer; 3 withdraw water from the Mt. Simon-Hinckley aquifer; and 1 well withdraws from the St. Peter aquifer. All 5 closed wells withdraw water from the Prairie du Chien-Jordan aquifer. The closing of these 5 wells has resulted in a loss of capacity of approximately 4.7 million gallons per day or approximately 35 percent of the total design capacity for St. Louis Park. A map entitled "City of St. Louis Park", attached as Exhibit No. 2, shows the locations of municipal wells in St. Louis Park and identifies which of the wells have been closed due to water contamination.

Contamination of the St. Louis Park Water Supply - Phenols

7. Initially, the MDH focused its attention on the presence of phenols in the St. Louis Park water supply. In the late 1960's through the early 1970's, the MDH conducted analyses for the phenol content of samples taken from municipal, industrial, and commercial wells. Phenols impart a bad taste to water but phenols alone are not believed to pose a significant health hazard at low levels of concentration. Some analyses indicated very low levels of phenols, while other samples analyzed by more accurate measurement techniques failed to indicate any detectable levels of phenols.

8. In 1974, the Minnesota Department of Health issued a report entitled "Report of Investigation of Phenol Problems in Private and Municipal Wells in St. Louis Park, Minnesota." The findings of this investigation established that the majority of the wells tested did contain low levels of phenolic compounds. The study included a number of recommendations, including the completion of a hydrogeologic study of the effects of Reilly's disposal practices and the conduct of a health risk assessment of chronic exposure to the water supply in St. Louis Park.

Contamination of the St. Louis Park Water Supply - Polynuclear Aromatic Hydrocarbons (PAH's)

9. In the mid-1970's, the MDH became seriously concerned about the possible contamination of soil and water by of a class of organic compounds, polynuclear aromatic hydrocarbons (PAH's), which are found in coal tar and coal tar products. In October of 1977, the MDH released a report entitled "Assessment of Possible Human Health Effects Resulting from the Contamination of the Former Republic Creosote Site." This report discussed the carcinogenicity of PAH's and suggested that PAH's may be present in St. Louis Park drinking water and may be posing a health threat. Since there was no sensitive and accurate laboratory method then available to analyze for individual PAH's in low part per trillion concentrations, the MDH could not specifically determine the presence of PAH's at the low concentrations which have since been detected in samples taken from the Prairie du Chien-Jordan aquifer. As a result, the MDH was unable at that time to assess precisely the threat to public health.

10. By May of 1978, the MDH was able to commence high performance liquid chromatography (HPLC) analyses of waters from St. Louis Park and surrounding communities for individual PAH's. This investigation established severe contamination of St. Louis Park Wells No. 7, No. 9, No. 10 and No. 15. These wells are located approximately ½ to 1 mile north-northeast of the Reilly site. Each of these wells withdraws water from the Prairie du Chien-Jordan aquifer. The results of this investigation were summarized in an MDH report entitled "Health Implications of Polynuclear Aromatic Hydrocarbons in St. Louis Park Drinking Water" (November 1978).

11. The MDH recommended that St. Louis Park Wells No. 7, No. 9, No. 10 and No. 15 be removed from service. These four contaminated wells were removed from service in November of 1978. Water samples withdrawn from each of these wells has established the presence of both carcinogenic and non-carcinogenic PAH's.

12. Beginning in July of 1978, the MDH began a program in St. Louis Park to abandon multi-aquifer wells, wells which are

open to several aquifers. These multi-aquifer wells further the spread of contaminated groundwater by providing conduits for such water to flow from one aquifer to another. Thus, an aquifer that is initially uncontaminated or protected by natural confining units is now subject to contamination from a contaminated aquifer by the flow of contaminated water through multi-aquifer wells. This is one mechanism that enables rapid spread of contaminants to deeper aquifers. To control this serious problem, the MDH has been conducting a well abandonment program which involves locating, cleaning, sampling, and sealing or reconstructing multi-aquifer wells that are no longer in use. Up to July of 1980, 24 multi-aquifer wells were sealed or reconstructed. Those wells that are reconstructed are maintained as monitoring wells. Work is continuing at the present time on five additional multi-aquifer wells and federal funding is being sought for a comprehensive effort to locate as many additional multi-aquifer wells in the St. Louis Park area as possible.

13. In December of 1979, St. Louis Park Well No. 4 was closed as increasing levels of PAH's were detected during the fall of 1979. The PAH's include both carcinogenic and non-carcinogenic PAH's. This well is also a Prairie du Chien-Jordan well, situated approximately 1½ miles southeast of the former Reilly site, as shown on Exhibit No. 2.

14. In February of 1981, Hopkins Well No. 3 was closed as high levels of non-carcinogenic PAH's were detected. This well is also a Prairie du Chien-Jordan well and is situated approximately 1 mile southwest of the Reilly site. Contaminant transport from the Reilly site through the Prairie du Chien-Jordan aquifer appears to be the explanation for the PAH contamination of Hopkins Well No. 3, although further hydrogeological and chemical investigations are needed to develop a complete understanding of the contamination problem. The location of Hopkins Well No. 3 is shown on Exhibit No. 2.

15. St. Louis Park Wells No. 5 and No. 14 have shown increasing levels of various non-carcinogenic PAH's during the past year. Both wells are Prairie du Chien-Jordan wells, with Well No. 5 located approximately ½ mile west of the Reilly site and Well No. 14 located approximately 1½ miles northeast of the Reilly site. Although the MDH has not recommended the closing of these wells, the increaing levels of PAH's necessitate close monitoring of these wells.

16. Twelve polynuclear aromatic hydrocarbons have been described as carcinogens by the U.S. Environmental Protection Agency in "The Carcinogen Assessment Group's List of Carcinogens", dated July 14, 1980. Five of these compounds have been detected in water samples withdrawn from public water supply wells located in St. Louis Park. These compounds are chrysene, benzo(a)pyrene, benzo(j)fluoranthene, benz(a)anthracene, and indeno(1,2,3-cd)pyrene (also known as o-phenylenepyrene). The non-carcinogenic PAH's also present a public health concern. Some of these PAH compounds are co-carcinogens, that is, the interaction of various non-carcinogenic PAH compounds with carcinogenic PAH compounds may result in an enhancement of the carcinogenic activity of cancer-causing substances. Furthermore, the presence of non-carcinogenic PAH's in the wells may act as early warnings of the arrival of carcinogenic substances.

Epidemiological Studies of Cancer in St. Louis Park

17. Concerned because PAH's are known to cause cancer in animals and because the residents of St. Louis Park may have been subject to a long term exposure to PAH's in their water supply, the MDH conducted a study in 1979 which found that St. Louis Park had an age adjusted breast cancer rate for women about 50 percent greater than those for the rest of the Twin Cities metropolitan area. In addition to the higher breast cancer rate, St. Louis Park was also found to have a slightly higher rate of gastrointestinal cancer in women, when compared with the rest of the Twin Cities. A follow-up study done in 1980 discovered enough demographic characteristics, or "risk factors", in the St. Louis Park population to account for the higher incidence of cancer.

Although at present the higher incidence of cancer cannot be statistically linked to the water supply in St. Louis Park, the limited information now available does not rule out chronic exposure to PAH's in the water supply as a cause of cancer in St. Louis Park. There are many factors which make it difficult to assess the risk of chronic exposure to PAH's in the St. Louis Park water supply, including the long latency period (20, 40 or more years) before the manifestation of cancer. The ability to assess the risk of long-term exposure to PAH's in the St. Louis Park water supply is also more difficult because St. Louis Park did not develop extensively until the late 1940's and early 1950's. Further epidemiological studies are likely to be conducted, if funding is available.

The Reilly Site

18. For over fifty-five years, Reilly refined coal tar and treated wood products at an eighty acre site near Highway 7 in St. Louis Park. Reilly disposed of its coal tar, creosote and other coal tar derivatives on the site. These wastes, which flowed over and off the Reilly site, are a mixture of possibly two hundred different compounds, including PAH compounds. Although the industrial operations at the Reilly site ended in 1972, the glacial drift material underlying portions of the site and adjacent property are saturated today with black, oily wastes.

19. Between November 1975 and July 1977, Barr Engineering Co., under contract to the Minnesota Pollution Control Agency, conducted a hydrogeologic study of the Reilly site to assess the extent and magnitude of contamination. The study concluded that the soil and drift aquifers are seriously contaminated and will act as a source of contaminants to the deeper bedrock aquifers, particularly via multi-aquifer wells.

20. In July 1978, the MDH retained the services of the U.S. Geological Survey (USGS) to better define the groundwater flow and organic contaminant transport in the aquifer systems underlying St. Louis Park. The USGS efforts will continue at least through October of 1981.

21. The field investigations conducted by the USGS establish that contaminants are continuously leaving the vicinity of the Reilly site through leaching of contaminants from the heavily contaminated soils and drift aquifers. The contaminants are entering deeper bedrock aquifers through general vertical migration, by flow into a buried bedrock valley, and by flow through multi-aquifer wells. One of the multi-aquifer wells is located on the Reilly site and is of particular concern. This well, a 909-foot well, has been videotaped and a large flow (150 gallons per minute) of water was observed flowing downward from an upper aquifer (the St. Peter aquifer) to the Prairie du Chien-Jordan aquifer. The well casing appears to be coated with coal tar and the well is plugged at a depth of 596 feet with a substance which appears to be coal tar. Recently, St. Louis Park installed an inflatable packer to eliminate the downward flow in the well casing and the resulting dispersion of contaminants in the Prairie du Chien-Jordan aquifer.

Groundwater Movement and the Continuing Threat to Public Water Supplies

22. Although groundwater flow regionally is toward the southeast in the Prairie du Chien-Jordan aquifer, local flow is extremely sensitive to local pumping. Pumping greatly accelerates the rate of groundwater flow and also changes the direction of groundwater flow.

23. St. Louis Park Municipal Well No. 4 is located approximately 1½ miles southeast of the Reilly site, in the direction of the regional groundwater flow. The effect of pumping to alter the direction of groundwater flow is demonstrated by the fact that the first wells impacted (St. Louis Park Well Nos. 7, 9, 10 and 15) are located approximately ½ to 1 mile north-northeast of the Reilly site. Furthermore, St. Louis Park Well No. 14 is located approximatley 1½ miles northeast of the Reilly site and St. Louis Park Well No. 5 is located approximately ½ mile to the

west of the Reilly site. This reversal of the natural flow of groundwater may also account for the presence of PAH compounds in Hopkins Well No. 3, located 1 mile to the southwest of the Reilly site. In other words, high capacity municipal wells are extremely effective at intercepting groundwater and, in this example, contaminated groundwater.

24. As impacted wells are removed from service, the contaminated groundwater will simply be drawn to other active wells and these wells will inevitably be impacted, as has been the experience for wells located in St. Louis Park. Unless the mass of contaminated groundwater is controlled and treated, and the source material removed or stabilized (PAH's are only subject to very slow and incomplete biological degradation), the contamination in the Prairie du Chien-Jordan aquifer will continue to rapidly spread and will impact additional high capacity wells.

25. It is becoming increasingly difficult to provide a safe water supply to the residents of St. Louis Park and may be difficult for surrounding communities within the next few years. The MDH is continuing its monitoring efforts to ensure that the remaining active wells continue to be safe as sources for drinking water. Without further remedial and mitigative actions, the extent and magnitude of groundwater contamination will continue to worsen.

Development of Remedial Programs

26. A consultant team headed by Eugene Hickok and Associates has been hired by the State of Minnesota to evaluate alternatives for removal/control of contaminated soils, develop a gradient control system to control the flow of groundwater, and evaluate alternative water treatment systems for handling contaminated waters. Further studies have been planned to develop a barrier well and pilot treatment system for the Prairie du Chien-Jordan

aquifer, to develop a more comprehensive well abandonment program, to investigate the two deep wells on the Reilly site and develop specifications for the clean-up of these wells. Federal funding is being sought for these projects.

David J. Gill

Subscribed and sworn to before me
this 5th day of June, 1981.

Christine L. Hinsteumer
Notary Public Marion Co
12-5-81

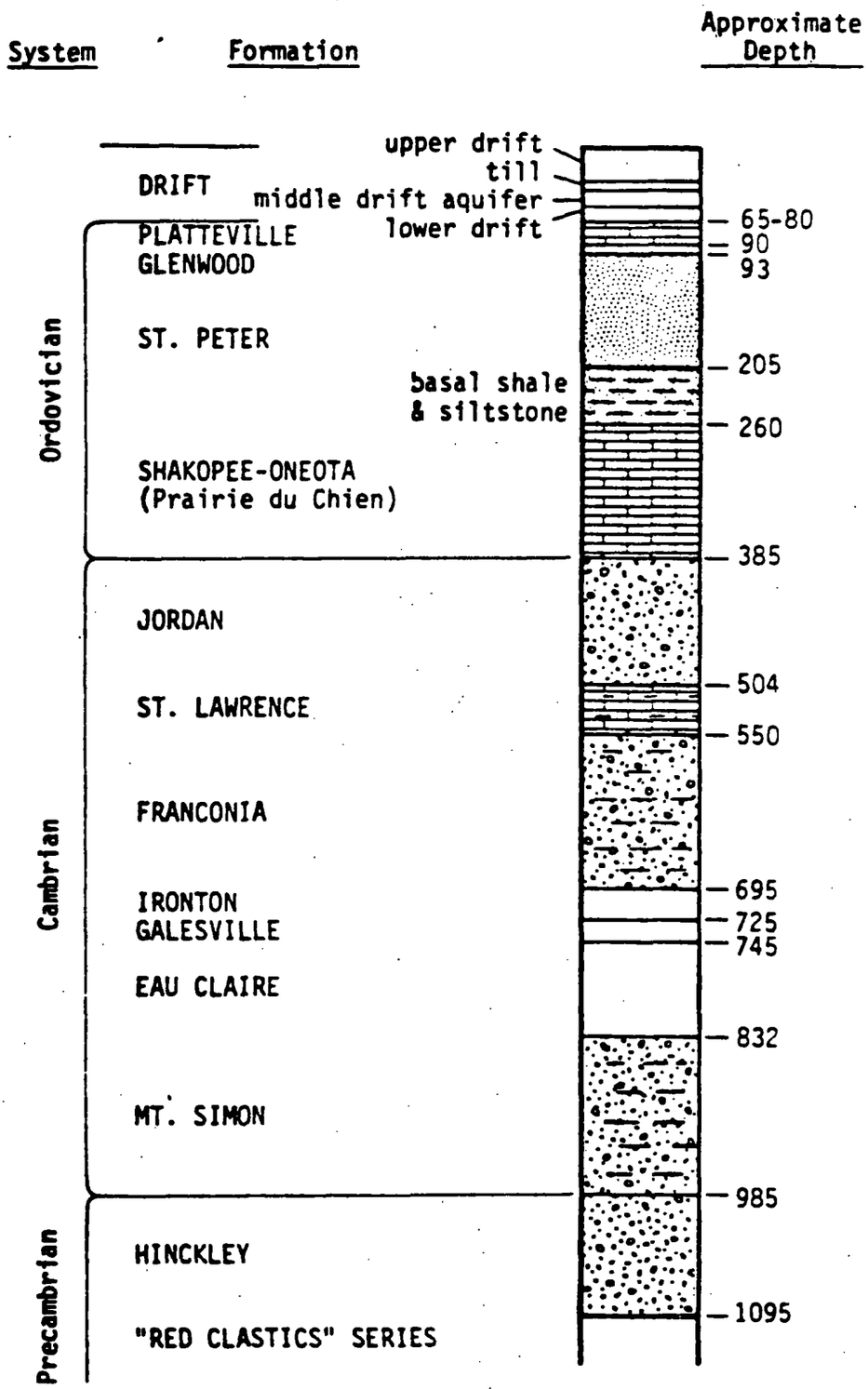
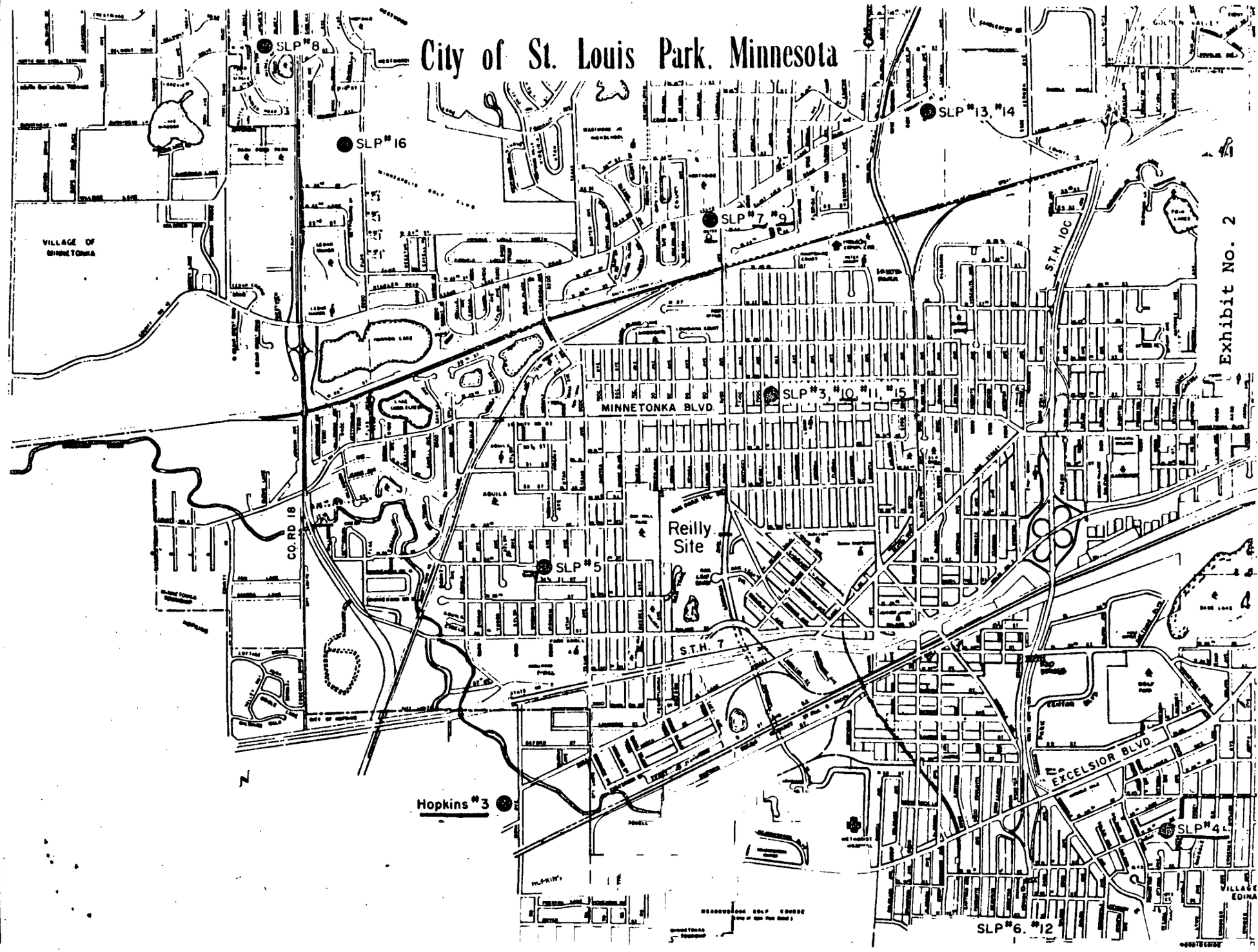


FIGURE 5

GENERALIZED GEOLOGIC COLUMN

Exhibit No. 1


City of St. Louis Park, Minnesota
SLP #8
SLP #16
SLP #13, #14
SLP #7, #9
VILLAGE OF MINNETONKA
S.T.H. 100
MINNETONKA BLVD.
SLP #3, #10, #11, #15
CO. RD. 18
Reilly Site
SLP #5
S.T.H. 7
EXCELSIOR BLVD.
Hopkins #3
SLP #4
SLP #6, #12
N
Exhibit No. 2